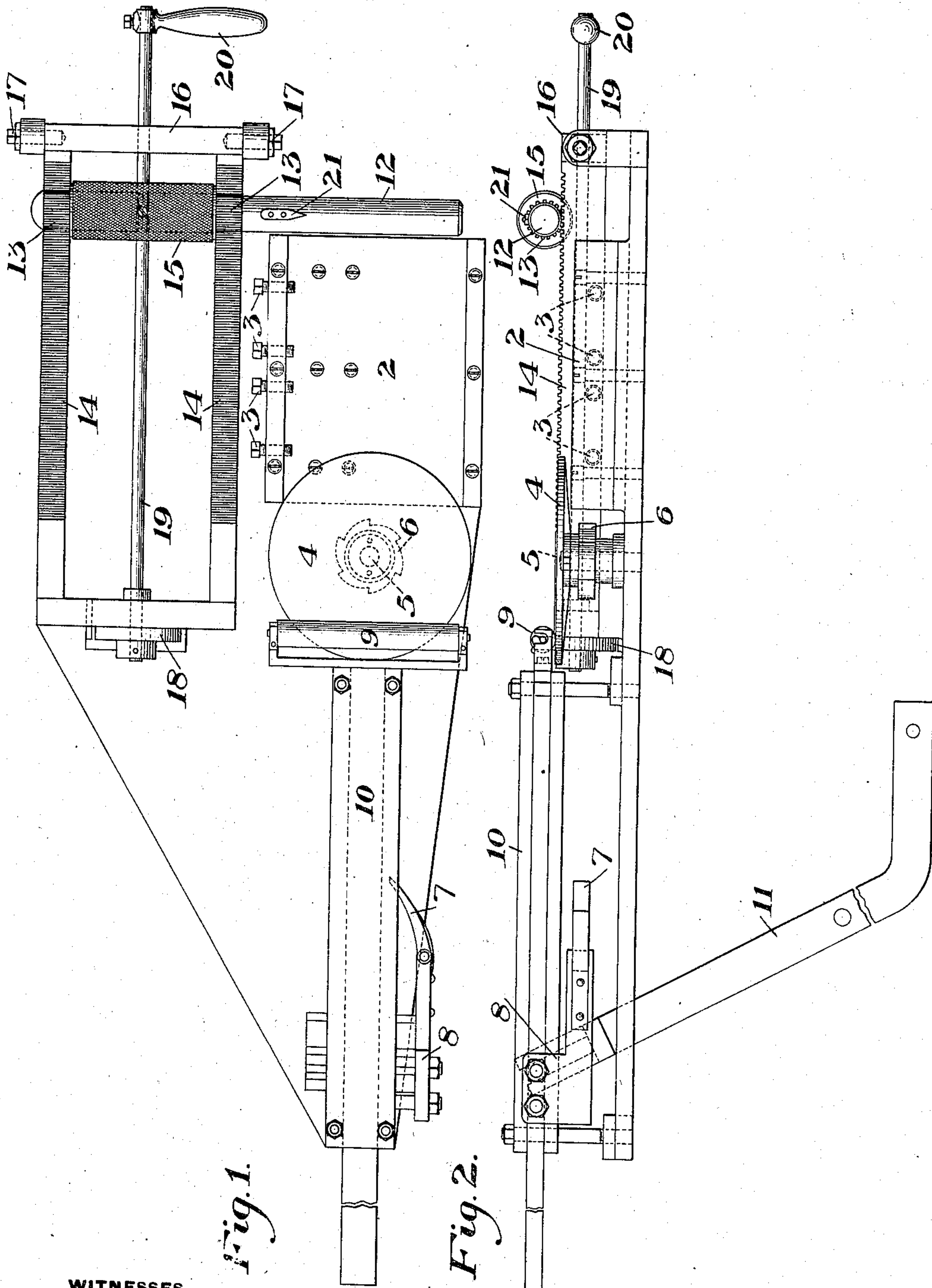


J. M. JOHNSON.
 APPARATUS FOR PRINTING TUBULAR ARTICLES.
 APPLICATION FILED JULY 12, 1906.

900,073.

Patented Sept. 29, 1908.



WITNESSES
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UNITED STATES PATENT OFFICE.

JAMES M. JOHNSON, OF NEW BRIGHTON, PENNSYLVANIA, ASSIGNOR TO STANDARD SPECIALTY & TUBE COMPANY OF NEW BRIGHTON, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

APPARATUS FOR PRINTING TUBULAR ARTICLES.

No. 900,073.

Specification of Letters Patent.

Patented Sept. 29, 1908.

Application filed July 12, 1906. Serial No. 325,766.

To all whom it may concern:

Be it known that I, JAMES M. JOHNSON, of New Brighton, Beaver county, Pennsylvania, have invented a new and useful Apparatus for Printing Tubular Articles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of my improved machine, and Fig. 2 is a side elevation.

My invention is designed to provide for the printing of tubes, especially collapsible tubes used for containing liquid paste, cement, etc., and it enables such devices to be printed either in a single color or in several colors rapidly and with great accuracy.

The machine shown in the accompanying drawings is provided with a holder 2 for the block or type form having the design which is to be printed on the tubular article, the block or type being held removably by screws 3 or otherwise.

4 is the ink plate, which is preferably of circular form, and is rotatably mounted on a central axis 5, on which it is adapted to be rotated step by step by means of a ratchet 6 and pawl 7, which pawl is mounted on a carriage 8 carrying the ink roller 9 and traveling in suitable slides 10. The carriage is reciprocated by a lever 11 which may be operated by foot or otherwise. When the lever 11 is moved so as to advance the carriage, the inking roller 9 moves over the plate, receives its surface coating of ink, and then advances over the type or block which it inks preparatory to printing, and when the carriage is at the end of its forward motion the pawl engages the ratchet and turns the plate a single step. The roller and carriage may be retracted by a spring or by a reverse motion of the lever 11.

12 is a mandrel on which the tube to be printed is set. This mandrel has guiding gear wheels or cogs 13 which travel on parallel racks 14, the purpose of which is to keep the mandrel constantly at right angles to the rack and to the type form or block. The shaft of the mandrel is provided with a sleeve 15, which can be grasped by the hand of the operator so as to move the mandrel

back and forth along the rack and over the type or block. Power means may, however, be employed for this operation. The racks 14 constitute part of a frame 16, pivoted at 17 and is adapted to be raised and lowered by means of a cam 18 which is rotated by a shaft 19 having a suitable handle 20. On rotating this shaft the cam is turned so as to raise the rear end of the frame so that when the mandrel is retracted it will be lifted above the level of the type and will not receive any impression on its backward motion. The mandrel has a detent or registering tooth 21 which notches or marks the tube when the latter is inserted on the mandrel, so that after the tube has been removed it can be replaced on the mandrel in a precisely identical position to enable a second impression of different color to be applied in exact register with the first impression. The tubes may, however, be marked in any suitable way before putting them on the machine, in which case the tooth 21 would simply register the impression.

In the operation of the device, the operator places a tube upon the mandrel 12, then advances the carriage with the roller 9 to receive ink from the plate 4 and to ink the type or block; and then by grasping the sleeve 15 and pushing it rearwardly on the rack the mandrel is caused to travel and rotate over the type or block and to produce an impression on the tube. The rear end of the rack frame is then elevated by rotating the cam, and the mandrel carrying the tube is again drawn forward free of the type. The tubes thus printed can be placed aside and allowed to dry, and another type or printing block substituted, together with an inking roller and platen containing ink of a different color and a second registering impression can be allowed on the tubes. In this manner any number of colors and designs may be printed; or if desired, the device can be used for printing only a single color.

Within the scope of my invention as specified in the claims, many changes may be made in the form and arrangement of the parts. Thus, I do not wish to limit myself to the printing of a single color at one impression, since more than one color may be

printed without removing the tube from the mandrel by adding to the number of forms; nor do I limit myself to the particular means shown and described for producing relative movement of the mandrel and form.

What I claim is:—

1. In apparatus for printing tubes, a mandrel, a printing form, the mandrel projecting laterally over the form from one side thereof and having a free end over which the tubes can be slipped, means for reciprocating the mandrel back and forth over the form, a tilting frame located to one side of the printing form in which the mandrel is mounted and means for tilting the frame, substantially as described.

2. In apparatus for printing tubes, a mandrel, a stationary printing form, the mandrel projecting laterally over the form and having a free end over which the tubes to be printed can be slipped, a tilting frame located to one side of the printing form and having means for guiding the mandrel for carrying the mandrel and upon which it is arranged to reciprocate, and means for rotating the mandrel as it is reciprocated, substantially as described.

3. In apparatus for printing tubes, a stationary printing form, a frame having a pivotal support at one side of the printing form, a mandrel rotatably and movably supported and guided on said frame, and having a free end portion projecting over the form, and means for raising and lowering the frame as the mandrel is moved thereon; substantially as described.

4. In apparatus for printing tubes, a stationary printing form, means for inking the same, a rotary mandrel located to one side of the printing form, and arranged to project over the form and having a free end over which the tubes to be printed can be slipped, means to reciprocate the mandrel over said form, a frame on which the mandrel is rotatably mounted, said frame being located at one side of the printing form, and means for raising the frame to lift the mandrel above

the level of the form; substantially as described.

5. In apparatus for printing tubes, a stationary form, a mandrel arranged to project over said form from one side and having a free end over which the tubes to be printed can be slipped to reciprocate over said form, means for rotating the mandrel as it is reciprocated, an inking roller also arranged to reciprocate over the form, an inking plate in the path of movement of said roller, and a pawl-and-ratchet mechanism actuated by the movement of said roller for intermittently rotating the plate, substantially as described.

6. In apparatus for printing tubes, a stationary type form, a mandrel having a shaft provided with two pinions, and a pivoted frame having parallel, toothed racks engaged by the pinions on the mandrel shaft, substantially as described.

7. In apparatus for printing tubes, a stationary printing form, a mandrel projecting over the form from one side and having a free end, a pivoted supporting frame for the mandrel located to one side of the printing form, and upon which the mandrel is arranged to be longitudinally reciprocated, and parallel guiding means on said frame for the mandrel; substantially as described.

8. In apparatus for printing tubes, a stationary printing form, a mandrel projecting over the form from one side and having a free end, a pivoted supporting frame for the mandrel located to one side of the printing form, and upon which the mandrel is arranged to be longitudinally reciprocated, and parallel guiding means on said frame for the mandrel, said mandrel having a handle portion between the parallel guiding means; substantially as described.

In testimony whereof, I have hereunto set my hand.

JAMES M. JOHNSON.

Witnesses:

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